

CPC**COOPERATIVE PATENT CLASSIFICATION****D01F****CHEMICAL FEATURES IN THE MANUFACTURE OF ARTIFICIAL FILAMENTS, THREADS, FIBRES, BRISTLES OR RIBBONS APPARATUS SPECIALLY ADAPTED FOR THE MANUFACTURE OF CARBON FILAMENTS****Guide heading:****D01F 1/00****General methods for the manufacture of artificial filaments or the like**

- D01F 1/02 . Addition of substances to the spinning solution or to the melt ([addition of substances to viscose D01F 2/08 to D01F 2/20](#))
- D01F 1/04 . . Pigments
- D01F 1/06 . . Dyes
- D01F 1/07 . . for making fire- or flame-proof filaments
- D01F 1/08 . . for forming hollow filaments
- D01F 1/09 . . for making electroconductive or anti-static filaments
- D01F 1/10 . . Other agents for modifying properties
- D01F 1/103 . . . {Agents inhibiting growth of micro-organisms }
- D01F 1/106 . . . {Radiation shielding agents, e.g. absorbing, reflecting agents }

D01F 2/00**Monocomponent artificial filaments or the like of cellulose or cellulose derivatives Manufacture thereof**

- D01F 2/02 . from solutions of cellulose in acids, bases or salts
- D01F 2/04 . . from cuprammonium solutions
- D01F 2/06 . from viscose ([preparation of alkali cellulose C08B](#))
- D01F 2/08 . . Composition of the spinning solution or the bath ([preparing or dissolving cellulose xanthate C08B](#))
- D01F 2/10 . . . Addition to the spinning solution or spinning bath of substances which exert their effect equally well in either
- D01F 2/12 . . . Addition of delustering agents to the spinning solution
- D01F 2/14 Addition of pigments
- D01F 2/16 . . . Addition of dyes to the spinning solution
- D01F 2/18 . . . Addition to the spinning solution of substances to influence ripening
- D01F 2/20 . . . for the manufacture of hollow threads
- D01F 2/22 . . by the dry spinning process
- D01F 2/24 . from cellulose derivatives
- D01F 2/26 . . from nitrocellulose
- D01F 2/28 . . from organic cellulose esters or ethers, e.g. cellulose acetate

D01F 2/30 . . . by the dry spinning process

**D01F 4/00 Monocomponent artificial filaments or the like of proteins
Manufacture thereof**

D01F 4/02 . from fibroin

D01F 4/04 . from casein

D01F 4/06 . from globulins, e.g. groundnut protein

**D01F 6/00 Monocomponent artificial filaments or the like of synthetic polymers
Manufacture thereof**

D01F 6/02 . from homopolymers obtained by reactions only involving carbon-to-carbon unsaturated bonds

D01F 6/04 . . from polyolefins

D01F 6/06 . . . from polypropylene

D01F 6/08 . . from polymers of halogenated hydrocarbons

D01F 6/10 . . . from polyvinyl chloride or polyvinylidene chloride

D01F 6/12 . . . from polymers of fluorinated hydrocarbons

D01F 6/14 . . from polymers of unsaturated alcohols, e.g. polyvinyl alcohol, or of their acetals or ketals

D01F 6/16 . . from polymers of unsaturated carboxylic acids or unsaturated organic esters, e.g. polyacrylic esters, polyvinyl acetate

D01F 6/18 . . from polymers of unsaturated nitriles, e.g. polyacrylonitrile, polyvinylidene cyanide

D01F 6/20 . . from polymers of cyclic compounds with one carbon-to-carbon double bond in the side chain

D01F 6/22 . . . from polystyrene

D01F 6/24 . . from polymers of aliphatic compounds with more than one carbon-to-carbon double bond

D01F 6/26 . . from other polymers

D01F 6/28 . from copolymers obtained by reactions only involving carbon-to-carbon unsaturated bonds

NOTE

For the purposes of groups [D01F 6/30](#) to [D01F 6/96](#), the percentage for determining the major constituent is expressed in mole percent.

D01F 6/30 . . comprising olefins as the major constituent

D01F 6/32 . . comprising halogenated hydrocarbons as the major constituent

D01F 6/34 . . comprising unsaturated alcohols, acetals or ketals as the major constituent

D01F 6/36 . . comprising unsaturated carboxylic acids or unsaturated organic esters as the major constituent

D01F 6/38 . . comprising unsaturated nitriles as the major constituent

D01F 6/40 . . Modacrylic fibres, i.e. containing 35 to 85% acrylonitrile

- D01F 6/42
 - .. comprising cyclic compounds containing one carbon-to-carbon double bond in the side chain as major constituent
- D01F 6/44
 - . from mixtures of polymers obtained by reactions only involving carbon-to-carbon unsaturated bonds as major constituent with other polymers or low-molecular-weight compounds
- D01F 6/46
 - .. of polyolefins
- D01F 6/48
 - .. of polymers of halogenated hydrocarbons
- D01F 6/50
 - .. of polyalcohols, polyacetals or polyketals
- D01F 6/52
 - .. of polymers of unsaturated carboxylic acids or unsaturated esters
- D01F 6/54
 - .. of polymers of unsaturated nitriles
- D01F 6/56
 - .. of polymers of cyclic compounds with one carbon-to-carbon double bond in the side chain
- D01F 6/58
 - . from homopolycondensation products
- D01F 6/60
 - .. from polyamides (from polyamino acids or polypeptides [D01F 6/68](#))
- D01F 6/605
 - ... {from aromatic polyamides }
- D01F 6/62
 - .. from polyesters
- D01F 6/625
 - ... {derived from hydroxy-carboxylic acids, e.g. lactones }
- D01F 6/64
 - ... from polycarbonates
- D01F 6/66
 - .. from polyethers
- D01F 6/665
 - ... {from polyetherketones, e.g. PEEK }
- D01F 6/68
 - .. from polyaminoacids or polypeptides
- D01F 6/70
 - .. from polyurethanes
- D01F 6/72
 - .. from polyureas
- D01F 6/74
 - .. from polycondensates of cyclic compounds, e.g. polyimides, polybenzimidazoles
- D01F 6/76
 - .. from other polycondensation products
- D01F 6/765
 - ... {from polyarylene sulfides }
- D01F 6/78
 - . from copolycondensation products
- D01F 6/80
 - .. from copolyamides
- D01F 6/805
 - ... {from aromatic copolyamides }
- D01F 6/82
 - .. from polyester amides or polyether amides
- D01F 6/84
 - .. from copolyesters
- D01F 6/86
 - .. from polyetheresters
- D01F 6/88
 - . from mixtures of polycondensation products as major constituent with other polymers or low-molecular-weight compounds
- D01F 6/90
 - .. of polyamides
- D01F 6/905
 - ... {of aromatic polyamides }
- D01F 6/92
 - .. of polyesters
- D01F 6/94
 - .. of other polycondensation products
- D01F 6/96
 - . from other synthetic polymers

D01F 8/00 **Conjugated, i.e. bi- or multi-component, artificial filaments or the like**
Manufacture thereof

- D01F 8/02 . from cellulose, cellulose derivatives, or proteins
- D01F 8/04 . from synthetic polymers
- D01F 8/06 . . with at least one polyolefin as constituent
- D01F 8/08 . . with at least one polyacrylonitrile as constituent
- D01F 8/10 . . with at least one other macromolecular compound obtained by reactions only involving carbon-to-carbon unsaturated bonds as constituent
- D01F 8/12 . . with at least one polyamide as constituent
- D01F 8/14 . . with at least one polyester as constituent
- D01F 8/16 . . with at least one other macromolecular compound obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds as constituent
- D01F 8/18 . from other substances

D01F 9/00 **Artificial filaments or the like of other substances**
Manufacture thereof
Apparatus specially adapted for the manufacture of carbon filaments

- D01F 9/02 . of reaction products of rubber with acids or acid anhydrides, e.g. sulfur dioxide
- D01F 9/04 . of alginates
- D01F 9/08 . of inorganic material (from softened glass, minerals or slags [C03B 37/00](#); { obtaining ceramic fibres [C04B 35/62227](#) }; incandescent bodies [F21H](#) , [H01K 1/02](#), [H01K 3/02](#))
- D01F 9/10 . . by decomposition of organic substances ([D01F 9/12](#) takes precedence)
- D01F 9/12 . . Carbon filaments
Apparatus specially adapted for the manufacture thereof { (with fullerene structure, e.g. carbon nanotubes [C01B 31/0206](#)) }
- D01F 9/127 . . . by thermal decomposition of hydrocarbon gases or vapours { or other carbon-containing compounds in the form of gas or vapour, e.g. carbon monoxide, alcohols }
 - D01F 9/1271 {Alkanes or cycloalkanes }
 - D01F 9/1272 {Methane }
 - D01F 9/1273 {Alkenes, alkynes }
 - D01F 9/1274 {Butadiene }
 - D01F 9/1275 {Acetylene }
 - D01F 9/1276 {Aromatics, e.g. toluene }
 - D01F 9/1277 {Other organic compounds }
 - D01F 9/1278 {Carbon monoxide }
 - D01F 9/133 Apparatus therefor
 - D01F 9/14 . . . by decomposition of organic filaments
 - D01F 9/145 from pitch or distillation residues
 - D01F 9/15 from coal pitch

D01F 9/155	.....	from petroleum pitch
D01F 9/16	....	from products of vegetable origin or derivatives thereof, e.g. from cellulose acetate (D01F 9/18 takes precedence)
D01F 9/17	.....	from lignin
D01F 9/18	....	from proteins, e.g. from wool
D01F 9/20	....	from polyaddition, polycondensation or polymerisation products (D01F 9/145 , D01F 9/16 , D01F 9/18 take precedence)
D01F 9/21	.....	from macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
D01F 9/22	.....	from polyacrylonitriles
D01F 9/225	.....	{from stabilised polyacrylonitriles }
D01F 9/24	.....	from macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
D01F 9/245	.....	{from polyurethanes }
D01F 9/26	.....	from polyesters
D01F 9/28	.....	from polyamides
D01F 9/30	.....	from aromatic polyamides
D01F 9/32	....	Apparatus therefor
D01F 9/322	.....	{for manufacturing filaments from pitch }
D01F 9/324	.....	{for manufacturing filaments from products of vegetable origin }
D01F 9/326	.....	{for manufacturing filaments from proteins }
D01F 9/328	.....	{for manufacturing filaments from polyaddition, polycondensation, or polymerisation products }
D01F 11/00		Chemical after-treatment of artificial filaments or the like during manufacture ({of artificial filaments from softened glass, minerals or slags C03C ; from ceramics C04B }; finishing D06M)
D01F 11/02	.	of cellulose, cellulose derivatives, or proteins
D01F 11/04	.	of synthetic polymers
D01F 11/06	..	of macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
D01F 11/08	..	of macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
D01F 11/10	.	of carbon
D01F 11/12	..	with inorganic substances {Intercalation }
D01F 11/121	...	{Halogen, halogenic acids or their salts }
D01F 11/122	...	{Oxygen, oxygen-generating compounds (anode oxidising D01F 11/16) }
D01F 11/123	...	{Oxides }
D01F 11/124	...	{Boron, borides, boron nitrides }
D01F 11/125	...	{Carbon }
D01F 11/126	...	{Carbides (boron-comprising compounds D01F 11/124 ; nitrogen carbide D01F 11/128) }
D01F 11/127	...	{Metals (metal depositing by electrolysis D01F 11/16 ; metal alloys with

- reinforcing carbon fibres [C22C 49/14](#) }
- D01F 11/128 . . . {Nitriles, nitrogen carbides (nitrogen borides [D01F 11/124](#)) }
- D01F 11/129 . . . { Intercalated carbon- or graphite fibres }
- D01F 11/14 . . with organic compounds, e.g. macromolecular compounds
- D01F 11/16 . . by physicochemical methods

- D01F 13/00** **Recovery of starting material, waste material or solvents during the manufacture of artificial filaments or the like**

- D01F 13/02 . of cellulose, cellulose derivatives or proteins { (recovery of sodium sulfate from coagulation baths [C01D 5/006](#)) }

- D01F 13/04 . of synthetic polymers